WHAT IS CLAIMED IS:

1. An element for making electroconductive patterns on a substrate, the element comprising a support on which is disposed one or more photopatternable conductive layers; each photopatternable layer comprising:

a) electrically conductive polymer and an optional binder; and

b) microencapsulated photohardenable particles containing a conductivity enhancing or conductivity degrading modifier, the microencapsulated photohardenable particles being in close proximity to the electrically conductive polymer.

2. An element for making electroconductive patterns on a substrate, the element comprising a support on which is disposed one or more:

a) electrically conductive layer comprising electrically conductive polymer, and optionally, a polymeric binder; and

b) at least one photopatternable layer; each photopatternable layer comprising microencapsulated photohardenable particles containing a conductivity enhancing or conductivity degrading modifier, the photohardenable layer being in close proximity to the electrically conductive layer.

3. The element of claim 1 or claim 2, for use in a two- or three-dimensional electrode array fabrication process.

4. The element of claim 1 or 2 further comprising one or more non-conductive auxiliary layers.

5. The element of claim 1 or 2 wherein the conductivity modifier is contained in a capsule comprising a photosensitive free radical addition-polymerizable composition containing an autooxidizer.

6. The element of claim 5 wherein the polymerizable composition comprises a free radical addition polymerizable or crosslinkable compound; an ionic dye and reactive counter ion complex capable of absorbing actinic radiation; and a disulfide.

7. The element of claim 5 wherein the capsule has a mean diameter from 0.1 to 25 microns.

8. The element of claim 1or 2 wherein the binder is gelatin or modified gelatin.

9. The element of claim 1 or 2 wherein the conductivity enhancing modifier is:

a) represented by the following Formula II:

$$(OH)_n\text{-}R\text{-}(COX)_m$$

II

wherein m and n are independently an integer of from 1 to 20, R is an alkylene group having 2 to 20 carbon atoms, an arylene group having 6 to 14 carbon atoms in the arylene chain, a pyran group, or a furan group, and X is -OH or –NYZ, wherein Y and Z are independently hydrogen or an alkyl group; or

b) a sugar, sugar derivative, polyalkylene glycol, or glycerol compound; or

c) selected from the group consisting of N-methylpyrrolidone, pyrrolidone, caprolactam, N-methyl caprolactam, or N-octylpyrrolidone.

10. The element of claim 1 or 2 wherein said conductivity enhancing modifier is a N-methylpyrrolidone, pyrrolidone, caprolactam, N-methylcaprolactam, N-octylpyrrolidone, sucrose, glucose, fructose, lactose, sugar alcohol, 2-furan carboxylic acid, 3-furan carboxylic acid, sorbitol, glycol, ethylene

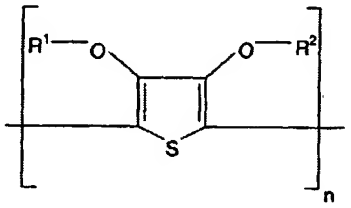
glycol, glycerol, diethylene glycol, or triethylene glycol, or a mixture of any two or more of these compounds.

11. The element of claim 1 or 2 wherein the conductivity enhancing modifier is N-methylpyrrolidone, pyrrolidone, caprolactam, N-methyl caprolactam, or N-octylpyrrolidone.

12. The element of claim 1 or 2 wherein the conductivity enhancing modifier is ethylene glycol, diethylene glycol or glycerol.

13. The element of claim 1 or 2 wherein the conductivity degrading modifier includes oxidants selected from the group consisting of ClO^-, BrO^-, MnO_4^-, $Cr_2O_7^{-2}$,-$S_2O_8^{-2}$, and H_2O_2.

14. The element of claim 1 or 2 wherein the electronically conductive polymer particles comprise a polythiophene present in a cationic form with a polyanion, said polythiophene comprising recurring units defined by the following Formula I



I

wherein each of R1 and R2 independently represents hydrogen or a C1-C4 alkyl group or together represent an optionally substituted C1-C4 alkylene group or a cycloalkylene group, preferably an ethylene group, an optionally alkyl-substituted methylene group, an optionally C1-C12 alkyl- or phenyl-substituted 1,2-ethylene group, a 1,3-propylene group or a 1,2-cyclohexylene group and n is 5-1000.

15. A method for forming an electrically conductive pattern on a substrate, the substrate comprising electrically conductive polymer, microencapsulated photohardenable particles containing a conductivity enhancing or conductivity degrading modifier, and optionally, a polymeric binder; the method comprising, the steps of:

a) subjecting the element to imagewise exposure with actinic radiation;

wherein actinic radiation exposure hardens the internal phase of the microcapsule;

b) subjecting the exposed element to a uniform rupturing force, wherein the rupturing force releases the conductivity modifier from unhardened microcapsules such that resistivity in areas contacted by the conductivity modifier increases or decreases by at least a factor of 10; and optionally

c) heating the substrate to fix the conductive pattern formed.

16. A method for forming an electrically conductive pattern on a substrate comprising, the steps of:

a) subjecting a first substrate comprising microencapsulated photohardenable particles containing a conductivity enhancing or conductivity degrading modifier, and optionally, a polymeric binder to imagewise exposure with actinic radiation; wherein actinic radiation exposure hardens the internal phase of the microcapsules;

b) contacting the exposed first substrate with a second substrate comprising electrically conductive polymer;

c) subjecting the two substrates that are in intimate contact to a uniform rupturing force, wherein the rupturing force releases and transfers the conductivity modifier from the unhardened microcapsules in the first substrate to the electrically conductive second substrate such that the resistivity in areas wherein transfer of the conductivity modifier occurs increases or decreases by at least a factor of 10; and optionally,

d) heating the electrically conductive substrate to fix the conductive pattern formed.

17. The method of claim 15 or claim 16 wherein resistivity in areas contacted by the conductivity modifier increases or decreases by at least a factor of 100.

18. The method of claim 15 or claim 16 wherein resistivity in areas contacted by the conductivity modifier increases or decreases by at least a factor of 1000.

19. The method of claim 15 or 16 wherein the conductivity modifier is:

a) represented by the following Formula II:

$$(OH)_n\text{-}R\text{-}(COX)_m$$

II

wherein m and n are independently an integer of from 1 to 20, R is an alkylene group having 2 to 20 carbon atoms, an arylene group having 6 to 14 carbon atoms in the arylene chain, a pyran group, or a furan group, and X is -OH or –NYZ, wherein Y and Z are independently hydrogen or an alkyl group; or

b) a sugar, sugar derivative, polyalkylene glycol, or glycerol compound; or

c) selected from the group consisting of N-methylpyrrolidone, pyrrolidone, caprolactam, N-methyl caprolactam, or N-octylpyrrolidone.

20. The method of claim 15 or 16 wherein the conductivity enhancing modifier is N-methylpyrrolidone, pyrrolidone, caprolactam, N-methylcaprolactam, N-octylpyrrolidone, sucrose, glucose, fructose, lactose, sugar alcohol, 2-furan carboxylic acid, 3-furan carboxylic acid, sorbitol, glycol, ethylene glycol, glycerol, diethylene glycol, or triethylene glycol, or a mixture of any two or more of these compounds.

21. The method of claim 15 or 16 wherein the conductivity enhancing modifier is N-methylpyrrolidone, pyrrolidone, caprolactam, N-methyl caprolactam, or N-octylpyrrolidone.

22. The method of claim 15 or 16 wherein the conductivity enhancing modifier is ethylene glycol, diethylene glycol or glycerol.

23. The method of claim 15 or 16 wherein the conductivity degrading modifier includes oxidants selected from the group consisting of ClO^-, BrO^-, MnO_4^-, $Cr_2O_7^{-2}$,-$S_2O_8^{-2}$, and H_2O_2.

24. The method of claim 19 wherein n and m independently of one another denote an integer from 2 to 8.

25. The method of claim 15 or 16 wherein the conductivity enhancing compound is sucrose, glucose, fructose, lactose, sorbitol, mannitol, 2-furancarboxylic acid, 3-furancarboxylic acid, ethylene glycol, glycerol, di-or triethylene glycol.

26. The method of claim 15 or 16 wherein the concentration of conductivity modifier in the photohardenable particles is 0.01 to 30 wt. % based on the weight of the photohardenable particles.

27. The method of claim 15 or 16 wherein the concentration of conductivity modifier in the photohardenable particles is 0.5 to 10 wt. % based on the weight of the photohardenable particles.

28. The method of claim 15 or 16 wherein the concentration of conductivity modifying agent in the photohardenable particles is 0.5 to 5 wt. % based on the weight of the photohardenable particles.

29. The method of claim 15 or 16 wherein the photohardenable particles have a particle size of 0.05 micron to 20 microns.

30. T he method of claim 15 or 16 wherein the photohardenable particles of have a particle size of 0.1 micron to 2.0 microns.

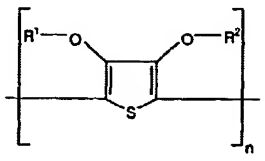
31. The element of claim 1 or 2 wherein the layer containing the conductive polymer contains 10 to 1000 mg/m^2 dry coating weight of the conductive polymer.

32. The element of claim 1 or 2 wherein the layer containing the conductive polymer contains 20 to 500 mg/m^2 dry coating weight of the conductive polymer.

33. The element of claim 1 or 2 wherein the conductive polymer is a substituted or unsubstituted pyrrole-containing polymer, a substituted or unsubstituted thiophene-containing polymer, or a substituted or unsubstituted aniline-containing polymer.

34. The element of claim 1 or 2 wherein the layer containing the conductive polymer comprises a mixture containing:

a) polythiophene according to Formula I;



Polythiophene Formula (I)

wherein each of R^1 and R^2 independently represents hydrogen or a C1-C4 alkyl group or together represent an optionally substituted C1-C4 alkylene group or a

cycloalkylene group, preferably an ethylene group, an optionally alkyl-substituted methylene group, an optionally C1-C12 alkyl- or phenyl-substituted 1,2-ethylene group, a 1,3-propylene group or a 1,2-cyclohexylene group and n is 5-1000;

b) a polyanion compound; and optionally

c) a film forming polymeric binder.

35. The element of claim 1 or 2 wherein the polyanion is an anion of a polymeric carboxylic acid.

36. The element of claim 1 or 2 wherein the polyanion is a polyacrylic acid, a poly(methacrylic acid), a poly(maleic acid), or a polymeric sulfonic acid.

37. The element of claim 1 or 2 wherein the polyanion is a polystyrenesulfonic acid or a polyvinylsulfonic acid.

38. The element of claim 1 or 2 wherein the film-forming polymeric binder comprises from 5 to 95 wt% of the layer containing the conductive polymer.

39. The element of claim1 or 2 wherein the film-forming polymeric binder is gelatin or gelatin derivatives.